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EXAMINER
NGUYEN, THAN VINH

ART UNIT	PAPER NUMBER
2187	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 May 2010</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,39,40 and 45-51* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *45,46 and 50* is/are allowed.

6)☒ Claim(s) *1-16,39,40,47-49 and 51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This is a response to the amendment, filed 5/28/10.

2.   Claims 1-16,39,40,45-51 are pending.

Response to Arguments

3.   Applicant's arguments filed 12/23/09 have been fully considered but they are not

persuasive.   The MPEP section relied on is not 2164.08 (as cited by Applicant) but MPEP 2173.

4.   The claims are rejected under 35 USC 112, second paragraph, because they do not

provide a clear measure of what applicants regards as the invention. They are rejected because

one of ordinary skills in the art can not possibly apprise the actual scope of the invention without

"reading" details from the specification into the claims. The current claims are rejected because

the scope is vague and ambiguous to one of ordinary skills in the art.

5.   The claim language (at least from independent claims 1,39,40,45,51) under consideration

is: "selecting a parity subtraction method or a recalculation method for parity calculation based

on the method that requires a fewest number of read operations to compute parity for the I/O

operations". Now, if it is well-known in the conventional art that a parity subtraction method

will always provide the fewest number of read operations to compute parity for the I/O

operations, over a recalculation method, then there would be no question to one of ordinary skills

in the art on which method to choose. Vice versa, if it is well known in the convention art that

any subtraction method will provide the fewest number of read operations to compute parity for

I/O operations, over parity subtraction method, then it would clear to one of ordinary skills on

which method to choose. However, it is clear (at least from the claim language and

specification), that there is no "clear" conventional method that always provide the fewest

number of read operations to compute parity for I/O operations, one of ordinary skills in the art
would not be able to select which method to provide the fewest read operations. Thus, from the
current language, there is no way one of ordinary skills can identify the metes and bounds of the
scope of the invention because one of ordinary skills cannot identify which method to choose
from without further information. Further information, such as first performing the individual
(parity subtraction and recalculation) methods and obtaining the results of each method, is
required in order to determine which method results in the fewest read operations. Therefore, the
scope of the claimed invention is vague and ambiguous, since one of ordinary skills cannot
possibly apprise the scope of the invention without further details that details which method
leads to the fewest read operations. Applicant's argument and explanation affirms the
Examiner's reasons since only when certain details of each method is performed (performing a
number of read operations, determining the fewest number of read operations per stripe,
selecting the method the number of reads is greater/less than the total number of storage blocks)
can the fully scope of the invention be apprised. Without reading further details from the
specification, the scope of the claimed invention cannot be comprehended. Thus, the Examiner
maintains that the claims are vague and indefinite under 35 USC 112, second paragraph. Again,
the Examiner suggests Applicant review the claims that are allowable for sound claim
construction that clearly identifies the scope of the invention and avoid vagueness. Applicant
should refer to claim 45 (last 3 paragraphs), which truly has the correct and necessary language
to use in claim 1.

6.   To overcome the USC 112, second paragraph rejection, Applicant should add the
limitations: determine the number of storage blocks to be written in each stripe, wherein the

recalculation method will provide the fewest read if the number of blocks to be written exceeds

half the total number of storage blocks in the stripe, and wherein the subtraction method will

require the fewest read if the number to be written is less than half the total number of storage

blocks in the stripe. These limitations will establish precedence the process of determining

which method will yield the fewest read before the actual selection of the which method to use

takes place.

Claim Rejections - 35 USC § 112

7.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

8.   Claims 1-16,39,40,47-49,51 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

9.   As to claim 1, Applicant claims "**selecting a parity subtraction method or a**

recalculation method for parity calculation based on the method that requires the fewest

number of read operations to compute parity for the I/O operations". Applicant claims

selecting a parity subtraction method or recalculation method for parity calculation based on the

method that requires the fewest number of read operations to compute parity. However,

Applicant fails to provide how the process of determining which method requires the fewest

number of read operations. Without the process of actually first performing each parity

calculation method (subtraction and recalculation), there is no way of determining which one

requires the fewest reads. Therefore, Applicant must further include the actually steps of

performing each parity method (subtraction and recalculation) to obtain the number of read

operations necessary for each method to satisfy the 112, second paragraph, requirement.

10.   Claims 16,39,40,47,51 have the <u>same deficiency</u> as claim 1 above and are rejected for the

<u>same reasons</u> as claim 1.

11.   As to claim 2, the language of "**controlling execution of I/O operations by identifying**

a plurality of contiguous storage blocks on a single storage device for use by each I/O

operation **so as to substantially minimize a number of read operations** needed for calculation

of error correction parameters access a stripe" is vague and indefinite. The term "controlling" in

"controlling execution of I/O operations" is purely vague and ambiguous since the term

controlling has an infinite number of meanings. The language of "so as to substantially

minimize a number of read operations" is indefinite as Applicant neglected to indicate, in the

claim language, how this "minimize" function is realized. Without specific steps to achieve those

results, one of ordinary skills cannot make and/or use the invention, as claimed. Thus the claim is

indefinite as it does not provide enough information to ascertain how the invention functions

since Applicant only claims the result of a step/function without indicating the necessary steps to

obtain that result. Applicant must include all the necessary process steps required to minimize a

number of read operations needed for calculation of error correction parameters to satisfy the

112, second paragraph, requirement.

12.   Claims 3-15 are also rejected for incorporating the error of the parent claim.

13.   As to claim 47, Applicant claims "**selecting** whether to substantially minimize the

number of read blocks **or** to substantially maximize chain lengths of read blocks, and

implementing the selection, during the writing of the data to the plurality of storage devices,

responsive to the block layout information, and responsive to whether substantially minimizing the number of read blocks or substantially maximizing chain lengths of read blocks requires fewer numbers of read operations". Applicant failed to indicate what process is involved in the "implementing the selection" step to realize "substantially minimize the number of read blocks" or "substantially maximizing chain lengths of read blocks", without which one of skills cannot understand how the claimed invention operates/functions to achieve the desired goal. The terms "implementing the selection" is already vague and ambiguous in meaning, which, without further steps defining what is involved in the implementation step, one in the art could not possibly understand how the implementation is implemented to obtain the desired results. Thus, the claim language is vague and indefinite as Applicant fails to recite the necessary steps involved to "implement the selection". Applicant must include all the necessary process steps required to implement the selection to minimize the number of read blocks **and** maximize the chain length of read blocks to satisfy the 112, second paragraph, requirement.

14.   Claims 48-49 are also rejected for incorporating the error of the parent claim 47.

Allowable Subject Matter

15.   Claims 45-46,50 are allowed for reasons indicated previously (6/6/08).

16.   Claims 1-16,39,40,47-49,51 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. The reason for allowable subject matter is indicated in the 6/6/08 Office Action.

Conclusion

17.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The

examiner can normally be reached on 7am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kevin Ellis can be reached on (571) 272-4205. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Than Nguyen/   Than Nguyen
Primary Examiner, Art Unit 2187   Primary Examiner
                                                     Art Unit 2187